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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/760,592	01/16/2001	Hisashi Kawabata	P/2635-64	4297

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Steven I Weisburd Esq
Dickstein Shapiro Morin & Oshinsky LLP
1177 Avenue of the Americas 41st Floor
New York, NY 10036-2714

EXAMINER

CHANG, EDITH M

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 03/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/760,592

Applicant(s)

KAWABATA, HISASHI

Examiner

Edith M Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-8, 10-15 and 17-22 is/are rejected.
- 7) ☐ Claim(s) 4, 9 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2, 5-6.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 4, 9, 11-12, 16, 18-19, and 21-22 are objected to because of the following informalities:

Claim 4, & 9, line 8 & 14, the terms “candidate phases” is suggested to be changed to “the target phases”. In the claims there is no antecedence for “candidate phases” to indicate what they are, where they are provided from; and how they are created.

Claim 11, line 11, the term “said phase” lacks antecedence. It suggest changing it to “said ranked phases” or “ a phase to a” to clearly indicate the invention.

Claim 16, line 8 & 13, the terms “candidate phases” is suggested to be changed to “the target phases”. In the claims there is no antecedence for “candidate phases” to indicate what they are, where they are provided from; and how they are created.

Claim 18, lines 4-5, “said added semi-synchronous” lacks antecedence.

Claim 21, line 9, the “said phase” lacks antecedence.

Claim 22, line 10, the “said plurality of ranked phases” lacks antecedence in this claim or its parent claims. The “method according to claim 20” in line 2 is suggested to be changed to “method according to claim 21”.

Appropriate corrections are required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 3, 8, and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3, 8, and 14, the term "priority" in " ranking portion determines an order of priority" is not defined specifically to an order of priority of what. Add limitation to indicate the priority of what that determined by the ranking portion to clearly claim the invention.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-2, 7, 13-14, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Garyantes (US 6463048 B1).

Regarding **claims 1 & 13**, Garyantes discloses a synchronization establishing and tracking circuit and its method for a CDMA base station (FIG.1A, FIG.3) comprising: a first spreading code generator generating a first spreading code sequence (40-50 FIG.3 generates the first spreading code input to 20); a first correlator (20 FIG.3) calculating first correlation between the first spreading code sequence and a first quasi-coherent signal corresponding to a first

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received signal (DATA FROM ANTENNA A FIG.3 is the first quasi-coherent signal); a second spreading code generator generating a second spreading code sequence (40-50-60 FIG.3 generates the second spreading code input to 30); a second correlator (30 FIG.3) calculating second correlation between the second spreading code sequence and a second quasi-coherent signal corresponding to a second received signal (DATA FROM ANTENNA B FIG.3 is the second quasi-coherent signal); and a phase determining circuit (45-40-50-65 FIG.3, FIG.4) determining a first phase of the first spreading code sequence based on an added quasi-coherent signal to which the first and second quasi-coherent signals are added (column 8 lines 10-17 where the phase determining circuit FIG.4 taking the added quasi-coherent signal/composite received signal provides bump commands to determine the phase of the spreading code sequence of the base station received from different sectors. In order for the bump commands to control the phase of the code generator for different received signal from different antennas, it has to take the added/composite received signal to provide the adequate controls).

Regarding **claims 2, 7, 14 & 19**, Garyantes discloses a ranking portion of the phase determining circuit (40-50 FIG.3) determining a plurality of target phases based on the added quasi-coherent signal; and a phase setting circuit (50-60 FIG.3) setting the first phase and second phase to a selected phase selected from among the target phase

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5-6, 10-12, 17-18 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garyantes (US 6463048 B1) in view of Keskitalo et al. (US 6212406).

Regarding **claims 5, 10, 17 & 20**, Garyantes does not explicitly specify the basic elements in the correlator/receiver and the space diversity circuit, however Keskitalo et al. teaches a maximum correlation phase determining circuit determining a despreading phase based on the correlation (Fig.7, 620 is the maximum correlation phase determining circuit, the despreading phase received from 624, where the 622 is the correlation result; the 618 is related to the despreading phase that based on the correlation); a despreading circuit (620 Fig.7 with a code generator for despreading and demodulating) despreading the quasi-coherent signal using another spreading code sequence having the despreading phase (624-620 Fig.7, column 12 lines 56-65 where the 624 as the synchronizing means based on the phase from the correlation); a synchronization detecting circuit (624 Fig.7) detecting a synchronization of the quasi-coherent signal (column 11 lines 3-20 where the receiver allocated for demodulating the best components based on the phase delay profile of the received quasi-coherent signal) with another spreading code sequence (620 Fig.7) to output a synchronization informing signal to the spreading code generator (624 -> 618 Fig.7 is the synchronization informing signal) to establish the synchronization between the quasi-coherent signal and the despreading spreading code sequence; and a space diversity circuit (604, 608-610 Fig.7). As Garyantes base station with multiple antennas and rank receivers, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the receiver and space diversity circuit taught by Keskitalo et al. in Garyantes' correlator to receive the wireless signal from different antennas to have a

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quality communication (column 3 lines 40-55). The modified/combined rank receiver (20/30 FIG.3 '048 with the receiver 600 FIG.7 '406) has a first maximum correlation phase determining circuit determining a first despreading phase based on the first correlation, a first despreading circuit despreading the first signal using the third spreading code (20 FIG.3 '048 & 600/620 Fig.7 '406); a second maximum correlation phase determining circuit determining a second despreading phase based on the second correlation a first despreading circuit despreading the first signal using the fourth spreading code (30 FIG.3 '048 & 600/620 Fig.7 '406); and a space diversity circuit identifying a direction of a mobile station transmitting at least one of the first and second received signals (column 11 line 43-column 12 line 12, where the direction of transmitter is identified by the circuit).

Regarding **claims 6 & 18**, Garyantes discloses the phase determining circuit determining a second phase of the second spreading code sequence based on the added quasi-coherent signal (45-50-60 FIG.3).

Regarding **claims 11-12 & 21-22**, except specify explicitly the adder for the composite received signal, Garyantes discloses a synchronization establishing and tracking circuit and its method for a CDMA base station comprising (FIG.3): a receiver correlating and despreading the received signal (20/30 FIG.3); a ranking circuit storing a plurality of target phases based on the added quasi-coherent signal (50 FIG.3); and a phase setting circuit setting the phase to a selected phase selected from among the ranked phases (60-65 FIG.3, FIG.4 output the bump commands to 40 and 60). However Keskitalo et al. teaches the adder circuit to composite the received antenna signals (Fig.4, column 30-46). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the adder circuit taught by Keskitalo et al. in

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Garyantes' early-late correlation process (FIG.4 '048) to generate the composite received signal to identify a direction of a mobile station transmitting at least on of the first and second received signals (column 11 line 43-column 12 line 12, where the direction of transmitter is identified by the circuit).

Allowable Subject Matter

8. Claims 4, 9, and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and overcome the objections.

Conclusion

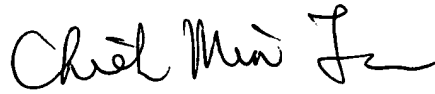
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M Chang whose telephone number is 703-305-3416. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang
March 18, 2004


CHIEH M. FAN
PRIMARY EXAMINER